# DRINKING WATER

## Results for 2002

The Drinking Water Program monitors drinking water to ensure it is safe for consumption and to demonstrate that it meets federal and state regulations. The Drinking Water Program currently monitors 10 water systems, which include 17 wells. Some of the wells are water sources for production water (i.e., industrial and fire safety), as well as drinking water.

Groundwater supplies the drinking water at the INEEL. Three groundwater contaminants have impacted INEEL drinking water systems, but concentration levels are still below their regulatory limits: tritium at Central Facilities Area, carbon tetrachloride at Radioactive Waste Management Complex, and trichloroethylene at Test Area North/Technical Support Facility. As a result of these known contaminants, the Drinking Water Program monitors more frequently than required. For example, the program monitors for bacteriological analyses more frequently because of past coliform bacteria detected in drinking water systems at INEEL facilities as a result of old pipes, stagnant water, and biofilm. Disinfection systems for bacteria were installed at all affected INEEL facilities, and as a result, no coliform bacteria were detected. Total coliform bacteria were detected at RWMC for the months of August and September. In October, a disinfection system was installed, and there has been no bacteria detection since the installation.

In addition to the routine sampling, the Drinking Water Program also collects nonroutine samples. For example, a nonroutine sample is collected after a water main breaks and is repaired to determine if the water is acceptable for use before it is put back into service. During Calendar Year 2002, the Drinking Water Program received 23 requests for nonroutine sampling.

### QUICK FACTS

- 10 water systems with 17 wells
- Monthly, quarterly, and annual monitoring
- 254 samples analyzed in 2002
- Monitoring locations:
  - Central Facilities Area
  - Experimental Breeder Reactor I
  - Gun Range
  - Idaho Nuclear Technology and Engineering Center
  - Main Gate
  - Power Burst Facility
  - Radioactive Waste Management Complex
  - Text Reactor Area
  - Test Area North/Contained Test Facility
  - Test Area North/Technical Support Facility

### FOR MORE INFORMATION

Visit our Web site at:
http://cleanup.inel.gov/monitoring

Read the 2002 Environmental Monitoring Program Report available in DOE Public Reading Rooms or at our Web site.

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## RESULTS SUMMARY

Analytical results from the Experimental Breeder Reactor-I, Gun Range, Idaho Nuclear Technology and Engineering Center, Main Gate, Power Burst Facility, Test Area North/Contained Test Facility, and Test Reactor Area were well below drinking water limits for all regulatory parameters.

**Analytical results of interest in 2002:**

| Parameter[a] | Location | Results (4-Quarter Average) | MCL[b] |
|---|---|---|---|
| Trichloroethylene | TSF #1 Well | 2.93 μg/L[c] | NA[d] |
| | TSF Distribution | 1.38 μg/L[e] | 5 μg/L |
| Tritium | CFA Distribution | 10,234 pCi/L | 20,000 pCi/L |
| | CFA #1 Well | 10,347 pCi/L[e] | NA[d] |
| | CFA #2 Well | 9,607 pCi/L[e] | NA[d] |
| Carbon tetrachloride | RWMC Well | 4.3 μg/L | NA[d] |
| | RWMC Distribution | 2.88 μg/L | 5 μg/L |

a. These parameters are known contaminants that the Drinking Water Program is tracking.

b. Maximum Contamination Level - The highest level of a contaminant that EPA allows in drinking water. MCLs ensure that drinking water does not pose either a short-term or long-term health risk. EPA sets MCLs at levels that are economically and technologically feasible.

c. Sampled for surveillance purposes (not required by regulations to be sampled). The compliance point is after the sparger system (air stripping process); the compliance result is 1.38 μg/L for the four-quarter average.

d. NA—Maximum contaminant level (MCL) is not applicable to the well concentration.

e. Result is based on a 3-quarter average. One quarter result was unavailable for this location because of maintenance and repair.

- Central Facilities Area (CFA) - The CFA water system serves over 850 people daily. Since the early 1950s, wastewater containing tritium has been disposed of through injection wells and infiltration ponds to the Snake River Plain Aquifer at the Test Reactor Area and Idaho Nuclear Technology and Engineering Center. These wastewaters migrated south-southwest and are the suspected source of tritium contamination in the CFA water supply wells. The practice of disposing of wastewater through injection wells and infiltration ponds was discontinued. In general, tritium concentrations in groundwater have been decreasing due to changes in disposal rates, disposal techniques, recharge conditions, and radioactive decay.
- Radioactive Waste Management Complex. (RWMC) - The RWMC water system supplies all of the drinking water for over 300 people daily. Various solid and liquid radioactive and chemical wastes, including transuranic wastes, have been disposed of at the RWMC. The RWMC contains pits, trenches, and vaults where radioactive and organic wastes were disposed of. Carbon tetrachloride and other volatile organic compounds were detected in groundwater samples collected at the RWMC. Review of waste disposal records indicated an estimated 334,600 L (88,400 gal) of organic chemical wastes (including carbon tetrachloride, trichloroethylene, tetrachloroethylene, toluene, benzene, trichloroethane, and lubricating oil) were disposed of at the RWMC before 1970. High vapor-phase concentrations (up to 2,700 parts per million vapor phase) of volatile organic compounds were measured in the unsaturated zone above the water table. Groundwater models predict that volatile organic compound concentrations will continue to increase in the groundwater at the RWMC. Concentrations of carbon tetrachloride at the distribution system, the compliance point and the point from which water is first consumed at RWMC, remain below regulatory limits. The INEEL is investigating an air stripping process to reduce the carbon tetrachloride and other volatile organic compound levels in the water.
- Test Area North/Technical Support Facility (TAN/TSF) - In 1987, trichloroethylene was detected in the two wells (TSF #1 and TSF #2), which supply drinking water to approximately 100 employees at TSF daily. An inactive injection well is believed to be the principal source of trichloroethylene contamination at the TSF. Bottled water was provided until 1988 when a sparger system (air stripping process) was installed in the water storage tank to volatilize the trichloroethylene to levels below the maximum contaminant level. Trichloroethylene levels continue to remain below regulatory limits.